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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,942

04/08/2005

Hideyoshi Horimai

211A 3707 PCT

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05/22/2006

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EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/530,942	HORIMAI, HIDEYOSHI	
	Examiner	Art Unit	
	Christopher R. Lamb	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figure 14 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: on pages 8-9, the specification refers to Fig. 14 (A) where it appears to mean Fig. 14 (B), and vice versa.

Appropriate correction is required.

Claim Objections

3. Claims 1 and 6 are objected to because of the following informalities: the phrase "reference light for recording, and a reference light for recording" should probably be just "a reference light for recording" Appropriate correction is required.

4. Claim 6 is objected to because of the following informalities: it is not grammatically correct. In line 1, "that" should probably be "in which." Appropriate correction is required.

Art Unit: 2627

5. Claim 7 is objected to because of the following informalities: in line 1, the word "an" should not be in all capital letters. In lines 3-4, "of detector" should be "of the detector." Appropriate correction is required.

6. Claim 9 is objected to because of the following informalities: a number of terms are missing necessary articles. For example, "interference pattern" should be "an interference pattern," "information light" should be "an information light," etc. Appropriate correction is required.

7. Claims 13 and 14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

8. Claim 15 is objected to because of the following informalities: a number of terms are missing necessary articles. For example, "information light" should be "an information light," etc. Additionally, line 12 is not grammatically correct: it should perhaps be "pixels whose attributes are matched to each other within a." Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2627

10. Claims 1-3, 6-11, and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Horimai et al. (US 5,917,798).

Regarding claim 1:

Horimai discloses an information recording method wherein information is recorded to a recording medium by utilizing an interference pattern formed by the interference between an information light (column 10, lines 3-20), which is spatially modulated by digital pattern information displayed in a spatial light modulator which has a large number of pixels (column 12, lines 5-16), and a reference light for recording (column 10, lines 3-20), wherein:

digital information that is recorded is digital pattern information (column 21, lines 21-64) and expressed by the matching or mismatching of the attributes of adjacent pixels in said spatial light modulator (column 21, lines 21-64: a "0" or "1" is represented by mismatching pixels, and error data is represented by matching pixels: the error data is part of the "digital pattern information" because it is used as a tracking pixel pattern).

Regarding claim 2:

In Horimai, digital information is expressed by a plurality of pixels aligned in one-dimension of said spatial light modulator (Fig. 23A, 23B: the data is aligned in rows).

Regarding claim 3:

In Horimai, said spatial light modulator has a large number of pixels arranged in a grid, and plural digital pattern information expressed by a plurality of the pixels aligned in said one-dimension are combined to be displayed as two-dimensional digital pattern information (Fig. 23A, 23B).

Art Unit: 2627

Regarding claim 6:

Horimai discloses an information reproducing method in which the information is reproduced from a recording medium (column 10, lines 3-20) wherein information is recorded by utilizing an interference pattern formed by the interference between an information light (column 10, lines 3-20), which is spatially modulated by digital pattern information displayed in a spatial light modulator which has a large number of pixels (column 12, lines 5-16), and a reference light for recording (column 10, lines 3-20), wherein:

a reference light for reproduction is radiated to the recording medium to generate a reproduction light by which said digital pattern is carried (column 22, line 59 to column 23, line 10); and the matching and mismatching of the attributes of adjacent pixels in the digital pattern information of the reproduction light are detected (column 21, line 21 to column 22, line 11).

Regarding claim 7:

In Horimai's method, a detector for detecting reproduction light has a plurality of pixels, and the pixels of detector are disposed on a border of adjacent pixels in said digital pattern information (column 21, line 21 to column 22, line 11).

Regarding claim 8:

In Horimai, digital pattern information of said reproduction light is expressed by a plurality of pixels aligned in one dimension of said spatial light modulator (Fig. 23A, 23B).

Regarding claims 9-11:

All elements positively recited in these claims have already been identified with respect to claims 1-3 and 6-8.

Regarding claim 15:

Horimai discloses an information recording method wherein information is recorded in a recording medium by utilizing an interference pattern formed by interference between information light (column 10, lines 3-20), which is spatially modulated by digital pattern information displayed in a spatial light modulator which has a large number of pixels arranged in a grid (column 12, lines 5-16), and reference light for recording (column 10, lines 3-20), wherein:

digital information that is recorded is digital pattern information and expressed by the allocation of pixel groups comprising a succession of a plurality of pixels whose attributes are matched to each other within a predetermined area of the spatial light modulator (column 21, line 21 to column 22, line 11: the tracking pixel pattern is in a predetermined area and contains pixels whose attributes are matched to each other).

Regarding claim 16:

In the method of Horimai, a plurality of said pixel groups are disposed in a predetermined area (column 21, line 21 to column 22, line 11).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horimai in view of Suganuma (JP Publication 07-152095; see machine translation).

Regarding claims 4/1, 4/2, 4/3:

Horimai discloses an information recording method as discussed above.

Horimai does not disclose "wherein said digital pattern information is such that a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a pixel whose attribute matches on the other end."

Suganuma discloses recording digital pattern information where a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a pixel whose attribute matches on the other end (abstract).

Suganuma discloses that this helps eliminate diffraction during recording (abstract: Suganuma is not recording on the same kind of medium but the principle is still the same).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Horimai as taught by Suganuma to include wherein said digital pattern information is such that a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a pixel whose attribute matches on the other end.

The motivation would have been to reduce error during recording, as taught by Suganuma.

Regarding claims 5/1, 5/2, 5/3, 5/4:

In Horimai as taught by Suganuma digital pattern information is such that a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a certain number or more of consecutive pixels whose attributes match on the other sides (this is very similar to claim 4, and included in the teaching of Suganuma).

Regarding claims 12/9, 12/10, 12/11:

These are similar to claim 4, and rejected for the same reasons.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Curtis et al. (US 5,808,998), Burr (US 6,697,316), Visel et al. (US 5,511,058).

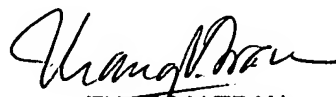
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CRL 5/15/06


THANG V. TRAN
PRIMARY EXAMINER